

Letter from Prof. V. Krutov, dated 25 May 1975 to US scientist

STATOTHR

Dear [REDACTED] :

1 On the 12th of April 1975 we received a letter from you.
2 In this letter you indicated your interest in the course of fulfill-
3 ment of the calendar plan or the second state of research in the
4 topic "Training and Utilization of Scientific and Engineering
5 Technical Cadres."
6

7 Permit me to inform you that we have sent to the American
8 side the following materials: course plans and programs for the
9 specialties -- physics, biology and civil construction, as well as
10 tables completed with statistical materials for one year. STATOTHR

11 During the period of his visit from 5 - 24 April 1975, [REDACTED]
12 STATOTHR [REDACTED] the expert from the US, had a fruitful exchange of
13 opinions on questions related to the second state of research on the
14 topic "Training and Utilization of Scientific and Engineering
15 Technical Cadres." The Soviet side gave to Dr. Feshback some
16 additional materials:
17

- 18 1. List of specialties and specializations of higher
19 educational institutions of the USSR;
- 20 2. List of specialties of higher educational institutions
21 of the USSR given in correspondence studies;
- 22 3. Nomenclature of specialties for the training of
23 scientific cadres in graduate work in the USSR;
- 24 4. List of specialties of technical schools /specialized
25 secondary educational institutions/ of the USSR.

26 In his turn [REDACTED] gave the members of the Soviet side
27 of the working subgroup the following materials:

- 28 1. Scientific classification of course programs of higher
29 schools in the US;
- 30 2. Dictionary of occupations in the US.

31 These materials will help us in our further work in the compari-
32 son of the level of training of specialists of higher and specialized
secondary education in particular in the specialties stipulated in
the protocol -- biology, physics and civil engineering.

Having studied the material sent to us we regretfully inform you that until now we do not have course plans and programs on the civil engineering specialty as well as tables on the training of scientific and engineering-technical cadres/completed with statistical materials for one year. In addition for more profound study of the level of training for the above-indicated specialties it would be desirable to obtain from the American side more detailed information on physics. For example, it would be desirable to obtain information on the number of course hours for each subject, the distribution of course and auditing hours by semester and year of study. In addition it would be desirable to have explanations to tables number 11, 12 and diagram 4.

We would also like to obtain more detailed information on the content of each course of the study program on physics and biology and the list of course literature for biology. STATOTHR

During the period of his visit [REDACTED] raised a proposal about the expediency (utility) of an exchange of typical dissertations (Candidate in the USSR and doctoral in the US) for the indicated specialties: physics, biology and civil engineering. We would like to know your opinion on this question.

The Soviet side has prepared a list of topics for future joint research of the working subgroup on "Training and Utilization of Scientific and Engineering Technical Cadres." It will be forwarded in the near future.

side of the working
At the present time the Soviet/subgroup is completing work on the outline of a draft report, and in the near future it will be forwarded to the American side.

We hope that the American side also will send an outline of a draft report in the near future keeping in mind that a discussion and agreement on the materials exchanged by each side will take place at a joint session in October 1975.

With regards and best wishes,

Letter from Dr. V. Krutov dated 25 March 1975

Dear [REDACTED] : STATOTHR

1 We would like to inform you that the Soviet section of the
2 subgroup held a meeting and worked out the necessary measures for
3 carrying out the calendar plan of the second stage on the subject
4 of "Training and Utilization of Scientific and Technical Manpower."
5 In accordance with the calendar plan we are sending you lists of
6 courses and programs of institutions of higher learning for the
7 following majors: Industrial and civil construction, physics and
8 also biology for the reason that the nomenclatures of university
9 majors do not include botany; it is represented in the field of
10 biology by specialized courses. We hope that the American side
11 will also send the Soviet side lists of courses and programs for
12 the major in biology. We are at this time sending you the following
13 tables containing statistical data for one year with respective
14 explanations of the method of putting them together: Table 1
15 DISTRIBUTION OF INSTITUTIONS OF HIGHER LEARNING GROUPED BY FIELDS
16 OF STUDY; Table 2 NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER
17 LEARNING GROUPED BY TYPES OF SCHEDULES; Table 3 ADMISSION TO
18 INSTITUTIONS OF HIGHER LEARNING IN SPECIALIZED SECONDARY SCHOOLS
19 BY FIELDS OF STUDY; Table 4 NUMBERS OF STUDENTS IN INSTITUTIONS OF
20 HIGHER LEARNING GROUPED BY SPECIALIZATION; Table 5 SPECIALISTS
21 GRADUATING FROM INSTITUTIONS OF HIGHER LEARNING GROUPED BY
22 SPECIALIZATION; Table 6 WOMEN STUDENTS IN INSTITUTIONS OF HIGHER
23 LEARNING; Table 7 DISTRIBUTION OF STUDENTS AT INSTITUTIONS OF
24 HIGHER LEARNING BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS
25 AND AUTONOMOUS TERRITORIES; Table 8 DISTRIBUTION OF SPECIALIZED
26 SECONDARY SCHOOLS GROUPED BY FIELDS OF STUDY; Table 9 NUMBERS OF
27 STUDENTS AT SPECIALIZED SECONDARY SCHOOLS GROUPED BY TYPES OF
28 SCHEDULES; Table 10 NUMBERS OF STUDENTS AT SPECIALIZED SECONDARY
29 SCHOOLS GROUPED BY SPECIALIZATION; Table 11 SPECIALISTS GRADUATING
30 FROM SPECIALIZED SECONDARY SCHOOLS GROUPED BY FIELDS OF SPECIALIZA-
31 TION; Table 12 WOMEN STUDENTS IN SPECIALIZED SECONDARY SCHOOLS;
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Table 13 DISTRIBUTION OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS
BY NATIONALITIES OF UNION AND AUTONOMOUS REPUBLICS AND TERRITORIES;

1 Table 14 NUMBERS OF STUDENTS STUDYING IN AND GRADUATING FROM
2 GRADUATE SCHOOLS; Table 15 DISTRIBUTION OF GRADUATE STUDENTS BY
3 FIELDS OF STUDY; Table 16 DISTRIBUTION OF RESEARCH AND TEACHING
4 STAFF BY FIELDS OF STUDY; Table 17 AVERAGE NUMBERS OF BLUE AND
5 WHITE COLLAR WORKERS, NUMBERS OF SPECIALISTS WITH HIGHER AND
6 SPECIALIZED SECONDARY EDUCATION GROUPED BY BRANCHES OF THE NATIONAL
7 ECONOMY.
8

9 At the present time our subgroup is working on an outline of a
10 paper and a list of questions on the basic trends of future scienti-
11 fic research in the USSR and the US on the subject of "Training and
12 Utilization of Scientific and Technical Manpower," which will be
13 mailed to you in the next letter. In accordance with the established
14 understanding and short visits by experts we are herewith informing
15 you of our agreement to receive [REDACTED] beginning
16 April 5, 1975. [REDACTED] STATOTHR
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18 With my best wishes to you and your colleagues,
19

20 /s/ V.I. Krutov,
21 Chairman, Scientific and Technical
22 Council of the Ministry of Higher
23 and Specialized Secondary Education
24 of the USSR, Professor
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Instructions for Tables Presented by the Soviet side.

Table 1: DISTRIBUTION OF INSTITUTIONS OF HIGHER LEARNING GROUPED

BY SPECIALIZATION. Table 1 and the following tables provide data on state institutions of higher learning in the USSR. Institutions of higher learning include universities, academies (teaching), specialized institutes of various fields of knowledge (engineering, agriculture, medicine, art, education, economics) conservatories, industrial plants, technological institutions of higher learning and other institutions of learning which provide higher education.

Table 2: NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING

GROUPED BY TYPES OF SCHEDULES. In the USSR specialists are trained in institutions of higher learning a. without being employed, while studying -- daytime courses; b. while employed -- evening courses, correspondence courses, in training at a plant, vtuz (institution of higher technical learning). At daytime and evening institutions of higher learning (university departments, divisions) the course system is used: the student is required to attend courses which, if offered in the evening, usually take place four times a week for four hours a night. In education by correspondence the subject-course system is used: the student is required to attend the institution of higher learning only during the laboratory and examination sessions in order to carry out the laboratory assignments; to attend the essential lectures; and to take oral and written examinations. Training in plant-vtuz programs set up at large industrial plants equipped with modern machinery is an intermediate type of education between full-time employment and full-time studying. In such programs training is combined with productive labor in all courses (with the exception of time allotted for diploma projects when the students are merely taking courses); the topics dealt with in laboratory research in various courses, papers and diploma projects are, as usual, related to the fields of industry. Relations between

the time spent on the plant and the time spent attending courses

is one-to-one. The term of study at institutions of higher learning is four to six years (in most cases five years). The period of time necessary for higher education obtained as a result of evening and correspondence courses is six to 12 months longer than daytime courses in corresponding fields of learning. In plant-vtuz programs students are distributed by types of schedules, depending on the type of training provided for the future specialists (daytime or evening courses).

Table 3: ADMISSION TO INSTITUTIONS OF HIGHER LEARNING IN SPECIALIZED

SECONDARY SCHOOLS BY TYPES OF SCHEDULES. All citizens of the USSR with a completed high school education have the right to be admitted to institutions of higher learning. Full time training (without being employed) is open to individuals up to 35 years of age; part-time courses (while employed) are open to anyone. Vocational schools in the USSR are open to citizens who have eight years of high school and in some cases to citizens with a completed general high school education. Daytime courses are open to individuals up to 30 years of age; evening correspondence courses are unlimited.¹ In specialized secondary schools students [in parentheses the author explains the proper Russian term for "specialized secondary school student"] are trained in technology, agronomy, and provided general education which gives the students the right to enter an institution of higher learning equal to those who have completed general high schools.

Table 3 contains information on the admission of students to institutions of higher learning and specialized secondary schools in the USSR.² Individuals admitted to preparatory courses at institutions of higher learning are not included in the number of regular students.

¹ Explanation on the types of schedules in vocational schools is provided in the instructions to table 9.

² Specialized secondary schools are explained in the instructions to table 8.

Table 4: NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING

GROUPED BY SPECIALIZATION. The number of students in institutions of higher learning grouped by specialization is quoted as of October first each year. The naming of groups by specialization has been according to the official USSR list of specialties approved in the appropriate manner.

Table 5: SPECIALISTS GRADUATING FROM INSTITUTIONS OF HIGHER

LEARNING GROUPED BY SPECIALIZATION. This table contains information on individuals who have completed the full course of theoretical studies in an institution of higher learning and were awarded a diploma. The names of the groups of specialists indicated are in complete agreement with the official USSR list of specialties.

Table 6: WOMEN STUDENTS IN INSTITUTIONS OF HIGHER LEARNING. This table provides data on specific numbers of women among the students at institutions of higher learning in the USSR grouped by fields of study.

Table 7: DISTRIBUTION OF STUDENTS IN INSTITUTIONS OF HIGHER

LEARNING BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND OF AUTONOMOUS REGIONS. In grouping students by nationalities all students of institutions of higher learning in the USSR are included.

Table 8: DISTRIBUTION OF SPECIALIZED SECONDARY SCHOOLS BY GROUPS

OF SPECIALIZATION. Tables 3, 8 and the following tables provide data on the state specialized secondary schools. The state technical and other specialized secondary schools are divided into two basic groups -- the technicum (trade, construction, transportation, communication, agricultural, economic and other) and uchilishche [place of learning] (educational, medical, musical, art and drama schools) some specialized secondary schools are traditionally called schools (for example, cultural general education schools, schools for trainers and others); some marine and river navigation technical secondary schools maintain their traditional names of uchilishche

(as for example the Leningrad Maritime Uchilishche, the Astrakhan River Navigation Uchilishche).

Table 9: NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS

GROUPED BY TYPES OF SCHEDULES. In the USSR courses in specialized secondary schools are offered in the daytime (for those who are not employed while studying), in the evening and by correspondence (for those who are employed while studying). In the daytime and night-time specialized secondary schools (divisions) the course (?) system is used in training: attendance of all courses is required; night courses are usually offered three to four times a week for four hours at a time. In correspondence courses the students are trained according to the subject course system: students are required to attend the laboratory and examination sessions at the technicum or uchilishche in order to complete all laboratory assignments and to take their written and oral examinations. Individuals who have finished eight grades are required to attend specialized secondary schools for three to four years if they are taking daytime courses, and graduates from general high schools -- $1\frac{1}{2}$ to 3 years, in most cases $2\frac{1}{2}$ years. Evening or correspondence courses in specialized secondary schools take six to eight months longer than for daytime courses in corresponding fields of study.

Table 10: THE NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED BY SPECIALIZATION. The numbers of students in specialized secondary schools are given as of October 1st of each year. The names of the groups of specialties indicated are in complete agreement with the official USSR list of specialties.

Table 11: STUDENTS GRADUATING FROM SPECIALIZED SECONDARY SCHOOLS GROUPED BY SPECIALIZATION. This table contains information on individuals who have completed the full course of theoretical studies at a specialized secondary school and were awarded a diploma

of an established form. The names of the groups of specialties indicated are in complete agreement with the official USSR list of specialties.

Table 12: WOMEN STUDENTS IN SPECIALIZED SECONDARY SCHOOLS. This table provides data on specific numbers of women among the students in vocational schools in the USSR grouped by specialization.

Table 13: DISTRIBUTION OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS REGIONS. The data on the grouping of students by schools nationality includes students attending specialized vocational/of the USSR.

Table 14: NUMBERS OF STUDENTS ATTENDING AND GRADUATING FROM GRADUATE SCHOOLS. Graduate education in the USSR is the basic way to train scientists and university faculty; graduate education is usually completed after the defense of the dissertation for the degree Candidate of Sciences. A graduate student is an individual who is preparing for teaching or research work at an institution of higher learning or at a scientific and research institution. Graduate work is possible in institutions of higher learning and scientific and research institutions which are able to provide adequately qualified guidance and modern experimental facilities. There are the so-called in presentia graduate courses for those who are not employed while studying and are not older than 35 years of age (studies lasting for three years) and the in absentia graduate/courses for those who are employed and are not older than 45 years of age (studies lasting for four years). Competitive entrance examinations for admission to graduate work are open to individuals who have completed higher education, who have demonstrated an aptitude for research work; to individuals from among the specialists in the field of national economy with at least two years of practical experience in a chosen field; and to young specialists immediately after

1 graduation from an institution of higher learning upon recommenda-
2 tion of the board (of the department) of an institution of higher
3 learning. Individuals aspiring to graduate work are required to
4 present their published research work, information on their
5 discoveries on experimental construction work (in the absence of
6 the latter -- a paper on the chosen specialization), have to consult
7 with the proposed academic adviser and subsequently take examinations
8 in the area of specialization, history of the CPSU and a foreign
9 language. The graduate student works under the guidance of an
10 academic adviser (as a rule a doctor of sciences, a professor)
11 according to an individually devised plan, studies his selected
12 area of specialization, acquires the skills of scientific research
13 experimental work and scientific methodology, takes courses required
14 for a Candidate of Sciences and works on his dissertation required
15 for the degree of Candidate of Sciences. The Candidates requirements
16 (Candidates examinations) are administered in dialectic and historical
17 materialism, one foreign language, and in the field of specialization.
18 In a number of institutions of higher learning and scientific
19 research institutes there is the so-called directed graduate train-
20 ing, which is one of the basic trainings for research and teaching
21 manpower for institutions of higher learning, scientific and
22 research institutes, agencies, state farms and other organizations
23 of the Union Republics, ministries and departments not equipped to
24 train scientific manpower. Institutions of higher learning also
25 provide one-year long graduate program designed for teachers and
26 for personnel of institutions of higher learning, technicums, teachers
27 from higher schools providing general education (up to 45 years of
28 age) who successfully pass their ~~required~~ Candidate examinations and
29 carried out their scientific and research work on the selected topic
30 within the scope sufficient for a dissertation to be completed
31 within one year. Tables 14 and 15 contain data on the numbers of
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graduate students as of January 1 of each year. The numbers of graduate students do not include students in one-year graduate program. Graduate studies are considered to be completed when the students have passed their Candidates' examinations, defended their Candidate's dissertations or presented it for defense in the proper established manner (having presented their dissertations for defense the students are given an appropriate statement to that effect).

In Table 14 column "Total Number of Graduate Students" includes individuals who completed their graduate studies in the established period of time and defended their dissertations or presented them for defense, as well as individuals who have been released from their graduate student duties due to the expiration of the training period.

Table 15: DISTRIBUTION OF GRADUATE STUDENTS BY FIELDS OF LEARNING IN 1973. The names of the branches of science indicated are in complete agreement with the official USSR list of specialties of scientists established in the proper order.

Table 16: DISTRIBUTION OF RESEARCH AND TEACHING STAFF BY FIELDS OF SCIENCE. The category of scientists and science researchers includes academicians, active members and corresponding members of the Academy of Sciences of the USSR, of the Academies of Sciences of the Union Republics, and of the specialized academies; all individuals holding the degree of a Doctor of Sciences, Candidate of Sciences or the academic title of Professor, lecturer, senior scientist, junior scientist and assistant, regardless of the place and nature of employment; individuals doing scientific research in science institutions that involve an academic work and teaching in institutions of higher learning, regardless of their having or not having an academic title, as well as specialists in industry, in organizations doing planning, in planning, construction and technical organizations who have neither a degree nor an academic title but who are doing

research work according to research plans approved by a superior agency. The category of scientists and researchers does not include: technicians and laboratory assistants who are doing research work but do not have higher education; members of the auxiliary and scientific as well as scientific and technical staff (engineers, agronomists, physicians, economists, etc.) who are involved in carrying out certain duties in agricultural and other experiments but are not directly conducting scientific research work within the framework of the scientific program; graduate students and research interns, even if they have been given scientific and research projects, parts or stages of these projects. The numbers of research and academic personnel are listed by institutions doing research and teaching in certain branches of science or fields of knowledge grouped by the topics of research projects approved in the proper order and having sufficient finances for conducting scientific research and remunerating scientific personnel, and they are also listed by institutions of higher learning. The naming of the branches of sciences indicated is in complete agreement with the official USSR Nomenclature of the specialties of scientific personnel.

Table 17: AVERAGE ANNUAL NUMBERS OF BLUE AND WHITE COLLAR WORKERS, NUMBERS OF SPECIALISTS WITH HIGHER AND SPECIALIZED SECONDARY EDUCATION GROUPED BY BRANCHES OF NATIONAL ECONOMY. The concept "blue and white collar workers" includes all categories of workers in plants, institutions and organizations i.e. laborers, students, engineering, technical and agro-zoo-technical workers, employees, junior auxiliary personnel and guards. In table 17 column "Average annual numbers of blue and white collar workers" contains data on the average numbers of employees on the staff. The average numbers on the lists of employees account for permanent employees of the plant, institution or organization including also

those employees who were absent due to illness or out on annual
(regular) leave, women on maternity leave, etc. The category of
specialists with a completed higher or specialized secondary
education includes employees holding a diploma (certificate or
certification) stating that they graduated from an institution
of higher or specialized secondary learning or an equivalent
institution, and are employed in plants, institutions, organizations
and collective farms, regardless of the type of work they do or
position they hold. Individuals who met the necessary theoretical
course requirements at an institution of higher or specialized
secondary education but did not defend a diploma project or did
not pass their final examinations, are not included among the
specialists with higher or specialized secondary education.

Table 1 - DISTRIBUTION OF INSTITUTIONS OF HIGHER LEARNING
GROUPED BY SPECIALIZATION
(At the beginning of the academic year)

(1970-71)

Total number of schools	805
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Broken down as follows:

Industry & Construction	201
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Transportation & Communication	37
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Agriculture	98
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Economics and law	50
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Health, physical education & sports	99
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Education, including universities	268
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Art and cinematography	52
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Table 2 - NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING
GROUPED BY TYPES OF SCHEDULES(At the beginning of the academic year,
in thousands)

Years	Total No. of Students	Broken Down as Follows:		
		Daytime courses	Evening courses	Correspondence Courses
1972-73	4,630	2,386	636	1,608

Table 3 - ADMISSION TO INSTITUTIONS OF HIGHER LEARNING AND SPECIALIZED
SECONDARY SCHOOLS BY TYPES OF SCHEDULES

(In thousands)

1973

Students admitted to institutions of higher learning	937.7
Broken down as follows:	
Daytime courses	544.7
Evening courses	124.5
Correspondence courses	268.5
Students admitted to specialized secondary schools	1,356.7
Broken down as follows:	
Daytime courses	864.2
Evening courses	149.4
Correspondence courses	343.1

Table 4 - NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING
GROUPED BY SPECIALIZATION

		(At the beginning of the academic year; in thousands)
		1972-73
1	Total	4,630.2
2	Broken down by groups of specialization	
3	Geology and prospecting	38.5
4	Development of Mineral Deposits	56.2
5	Power Generation	106.1
6	Metallurgy	54.5
7	Machine Construction & Instrument Making	551.3
8	Electronic Technology, Construction of electrical instruments & Automation	319.7
9	Radiotechnology and Communication	146.6
10	Chemical Technology	107.3
11	Forestry Engineering & Technology of Wood, Pulp and Paper	23.2
12	Food Product Technology	73.3
13	Technology of Consumer Goods	56.6
14	Construction	325.6
15	Geodesics and Cartography	8.9
16	Hydrology & Meteorology	7.9
17	Agriculture and Forestry	375.5
18	Transportation	135.8
19	Economics	565.6
20	Law	84.8
21	Health & Physical Sciences	338.4
22	University Specialties	350.6
23	Specialties at Institutes of Education and Institutions of Higher Learning and Culture	854.8
24	Art	39.6

Table 5 - SPECIALISTS GRADUATING FROM INSTITUTIONS OF HIGHER LEARNING
Grouped by Specialization (In Thousands: 1973)

Total	692.3
Broken down by the Following Groups of Specialization	
Geology & Prospecting	5.7
Development of Mineral Deposits	8.2
Energy	13.2
Metallurgy	7.9
Construction of Machines & Instrument Making	74.3
Electronic Technology, Construction of Electrical Instruments	47.4
Radiotechnology & Communication	21.0
Chemical Technology	17.3
Forestry Engineering & Technology & Technology of Wood, Pulp & Paper	4.3
Food Products Technology	10.0
Technology of Consumer Goods	7.2
Construction	38.7
Geodesics & Cartography	1.3
Hydrology & Meteorology	1.2
Agriculture & Forestry	52.0
Transportation	16.8
Economics	84.8
Law	11.9
Health & Physical Sciences	53.2
University Specialties	53.9
Specialties at Institutes of Education and Institutions of Higher Learning & Culture	154.7
Art	7.3

Table 6 - WOMEN STUDENTS IN INSTITUTIONS OF HIGHER LEARNING
(At the Beginning of the Academic Year) 1973-74

Percentage of Women Among the Students at Institutions of
Higher Learning - 50

Broken Down by Schools as Follows

Industry and Construction, Transportation and Communication	39
Agriculture	32
Economics & Law	61
Health, Physical Education & Sports	56
Education, Art & Cinematography	68

TABLE 7 - DISTRIBUTION OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING BY
NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS REGIONS
(At the Beginning of the Academic Year; in thousands) 1972-73

1	TOTAL - 4,630.2 - including the following nationalities:	
2	Russian	2774.1
3	Ukrainian	618.8
4	Belorussians	133.7
5	Uzbek	150.2
6	Kazaks	104.3
7	Georgians	86.4
8	Azerbaijanis	87.2
9	Lithuanians	51.8
10	Moldavians	30.3
11	Latvians	22.0
12	Kirghiz	27.3
13	Tadjiks	29.6
14	Armenians	80.0
15	Turkmens	22.2
16	Estonians	17.7
17	Abkhazians	1.9
18	Balkarians	1.8
19	Bashkirs	15.9
20	Buryats	12.3
21	Ingush	2.1
22	Kabardinians	5.9
23	Kalmyks	3.5
24	Karakalpaks	4.1
25	Kirlyians	1.7
26	Komi	4.8
27	Mari	5.1
28	Mordovians	12.0
29	Peoples of Daghestan	21.5
30	Ossets	13.0
31	Tatars	90.5
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TABLE 7 - Continued

1	Tubians	1.6
2	Udmurts	7.4
3	Chechens	5.3
4	Chubash	17.3
5	Yakuts	.5
6	Adygeians	2.7
7	Altai	1.1
8	Jews	88.5
9	Karachai	2.9
10	Khakass	1.2
11	Cherkess	1.0
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TABLE 8 - DISTRIBUTION OF SPECIALIZED SECONDARY SCHOOLS BY GROUPS OF
SPECIALIZATION (At the beginning of the Academic Year) 1970-71

Total number of schools - 4,223

Broken Down by Schools as Follows:

Industry & Construction	1420
Transportation & Communication	232
Agriculture	674
Economics & Law	349
Health, Physical Education & Sports	696
Education	543
Art & Cinematography	309

TABLE 9 - NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED
BY TYPES OF SCHEDULES (At the Beginning of the Academic Year:
in thousands)

	Years	
	<u>1972-73</u>	<u>1973-74</u>
Total Number of Students	4,438	4,448
Broken Down as Follows:		
Daytime Courses	2,690	2,275
Evening Courses	571	545
Correspondence Courses	1,177	1,178

TABLE 10 - NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED BY SPECIALIZATION (At the Beginning of the Academic Year: in thousands) 1972-73

1	Total - 4,437.9	
2	Broken Down by Groups of Specialties which are as follows:	
3	Geology & Prospecting	24.0
4	Development of Mineral Deposits	64.9
5	Power Generation	213.2
6	Metallurgy	48.5
7	Machine Construction & Instrument Making	553.4
8	Electronics Technology, Construction of Electrical Instruments	132.9
9	Radiotechnology & Communication	136.2
10	Chemical Technology	76.7
11	Forestry, Engineering & Technology of Wood, Pulp & Paper	47.1
12	Food Product Technology	160.7
13	Technology of Consumer Goods	108.9
14	Construction	409.8
15	Geodesics & Cartography	11.4
16	Hydrology & Meteorology	7.1
17	Agriculture	616.6
18	Transportation	280.3
19	Economics	629.6
20	Health & Physical Culture	432.4
21	Education	349.6
22	Art	129.4

TABLE 11 - GRADUATES FROM SPECIALIZED SECONDARY SCHOOLS GROUPED BY
SPECIALIZATION (In thousands) 1973

Total - 1,135.8

Broken Down by Groups of Specialties as follows:

Geology & Prospecting	5.5
Development of Mineral Deposits	14.1
Power Generation	49.5
Metallurgy	10.9
Machine Construction & Instrument Making	127.5
Electronic Technology, Construction of Electrical Instruments	31.8
Radiotechnology & Communications	30.0
Chemical Technology	20.2
Forestry, Engineering & Technology of Wood Pulp & Paper	10.8
Food Product Technology	37.1
Technology of Consumer Goods	23.9
Construction	87.9
Geodesics & Cartography	2.2
Hydrology & Meteorology	1.6
Agriculture	144.8
Transportation	60.9
Economics	208.7
Health & Physical Culture	140.3
Education	101.5
Art	25.2

TABLE 12 - WOMEN STUDENTS IN SPECIALIZED SECONDARY SCHOOLS (At the Beginning of the Academic Year - Percentage: 53) 1973-74

Percentage of women among the students in specialized secondary schools, broken down as follows:

Industry & Construction, Transportation & Communication	40
Agriculture	36
Economics & Law	85
Health, Physical Education & Sports	88
Education, Art & Cinematography	81

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TABLE 13 - DISTRIBUTION OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS REGIONS (At the Beginning of the Academic Year; in thousands) 1972-73

Total - 4,437 (Including the following nationalities)

Russians	2709.1
Ukrainians	669.1
Belorussians	156.9
Uzbeks	99.5
Kazaks	79.6
Georgians	46.8
Azerbaijanis	57.1
Lithuanians	57.7
Moldavians	32.7
Latvians	19.6
Kirghiz	16.9
Tadjiks	19.3
Armenians	64.5
Turkmens	15.0
Estonians	15.1
Abkhazians	1.0
Balkarians	1.1
Bashkirs	18.3
Buryats	7.6
Ingush	1.7
Kabardinians	3.9
Klamyks	3.6
Karakalpaks	4.7
Kirlyians	2.5
Komi	8.7
Mari	7.8
Mordovians	16.9
Peoples of Daghestan	20.7
Ossets	7.8
Tatars	106.3

TABLE 13 - Continued

1	Tubians	2.0
2	Udmurts	9.5
3	Chechens	6.7
4	Chubash	23.3
5	Yakuts	5.7
6	Adygeians	2.1
7	Altai	1.8
8	Jews	37.1
9	Karachai	1.4
10	Khakass	1.2
11	Cherkess	0.8
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TABLE 14 - NUMBERS OF STUDENTS ATTENDING AND GRADUATING FROM GRADUATE SCHOOLS 1973

Total number of graduate students at the end of the academic year: 98,660

Broken down as follows:

Without being employed while studying	49702
While employed	49158
In Research Institutions (without institutions of higher learning)	41220
Without being employed while studying	15579
While employed	25641
In Institutions of Higher Learning	57640
Without being employed while studying	34123
While employed	23517
Total Number of Students Graduating in a Year	25980
From Research Institutions (without institutions of higher learning)	10766
Without being employed while studying	5297
While employed	5369
From Institutions of Higher Learning	15214
Without being employed while studying	10781
While employed	4433

TABLE 15 - DISTRIBUTION OF GRADUATE STUDENTS BY FIELDS OF LEARNING IN 1973
(At the end of the Academic Year)

Number of Graduates - 98,860: Broken Down as Follows

		Research Institutions (Without Institutions of Higher Learning)	Institutions of Higher Learning
		41,220	57,640
5	<u>FIELDS OF LEARNING</u>		
6	Physics & Mathematics	11,910	4,303
7	Chemistry	4,626	1,992
8	Biology	4,672	2,764
9	Geology & Mineralogy	2,163	1,257
10	Technology	40,470	18,204
11			
12	Agriculture & Veterinary Science	5,676	3,554
13	History & Philosophy	5,559	1,311
14	Economics	10,599	4,022
15	Philology	2,792	535
16	Geography	775	336
17	Law	967	261
18	Education	2,241	798
19	Medicine & Pharmacology	4,961	1,274
20	Art	605	185
21	Architecture	480	283
22	Psychology et al	364	141

TABLE 16 - DISTRIBUTION OF RESEARCH & TEACHING FACULTY BY FIELDS OF LEARNING - 1973

Numbers of Research & Teaching Faculty - 1108.5

Broken Down by the Following Fields of Learning

1	Physich & Mathematics	111.0
2	Chemistry	51.9
3	Biology	43.5
4	Geology & Mineralogy	23.4
5	Technology	514.7
6	Agriculture & Veterinery Science	34.9
7	History	27.9
8	Economics	74.5
9	Philosophy	14.4
10	Philology	50.2
11	Geography	8.2
12	Law	5.8
13	Education	29.3
14	Medicine	55.2
15	Pharmacology	1.4
16	Art	13.7
17	Architecture	3.1
18	Psychology	2.5
19	Others	38.0
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TABLE 17 - AVERAGE ANNUAL NUMBERS OF BLUE & WHITE COLLAR WORKERS - NUMBER OF SPECIALISTS WITH HIGHER AND SPECIALIZED SECONDARY EDUCATION, GROUP BY BRANCHES OF NATIONAL ECONOMY (In Thousands)

	Average Annual No. of Blue & White Collar Workers	Number of Specialists		
		Total	With Higher Education	With Specialized Secondary Education
Total	97,466	20,361	8,384	11,977
Broken Down as Follows				
Industrial Plants	32,875	4,722	1,387	3,335
Agriculture (Collective Farms, State Farms, Aux. Agricultural Plants of MTS [Farm Equipment & Tractor Stations] & RTS [Repair & Technical Sta- tions])	9,885	1,195	362	833
Transportation Plants	8,705	773	183	590
Communication Plants	1,465	159	29	130
Construction Agencies: Drilling Agencies: Project & Research Organizations, Servicing & Construction	10,091	1,232	404	828
		30	11	19
Agencies of Trade, Food, Material & Technical Supplies: Marketing & Purchasing	8,392	525	341	186
Agencies of Health, Physical Education & Social Welfare	5,522	1,107	194	913
		2,678	678	2,000

TABLE 17 - Continued

	Average Annual No. of Blue & White Collar Workers	Number of Specialists			
		Total	With Higher Education	With Specialized Secondary Education	
1					
2					
3	Agencies of Education & Culture	8,708	4,280	2,703	1,577
4					
5	Agencies of Science & Science				
6	Services	3,735	1,760	1,204	556
7					
8	Credit & Government Insurance				
9	Agencies	465	166	33	133
10					
11	Bodies of State & Economic Government, Bodies				
12	Controlling Cooperative & Social Organiza-				
13	tions	2,008	1,218	667	552
14					
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Attached to the foregoing tables were plans of study, issued by the Ministry of Higher and Secondary Specialized Education of the USSR.

The Institution of Higher Learning is Engineering & Technical - Specialty 1202: Called Industrial & Civil Construction. Course schedule shows the schedule for the entire year and the summary information on distribution of time in weeks. Lists all the course names, selective courses - a regular curriculum approved by the Ministry of Higher & Secondary Specialized Education of the USSR.

There is one for Specialty 1202, which is Industrial & Civil Construction.

It is a five year course of study and would qualify an individual to be a specialist in Building Engineering.

The second is from a state university and it would qualify someone to be a specialist as a Biology Instructor. That is also a five year course. The number of the speciality is 2019 - Biology.

Similar item: Large paper form approx. 12 x 16 inches. Has everything listed.

The third one is for a state university -- a five year course, and would qualify someone to be a physics instructor. Specialty 20-16. Subject of specialization is physics. It lists the course names -- such things as The History of the CPSU, Marxist-Leninist Philosophy, Political Economics, Scientific Communism, Basic Scientific Aethism, Foreign Language, Introduction to the Specialties, Psychology, Pedagogy, Methodology of Teaching Physics, Higher Mathematics, General Physics, Practical Training in Physics, Astronomy, Theoretical Physics, Solving Applied Problems with Computers, Basic Radio Electronics, Labor Protection, Soviet Law, Laboraotry for Courses of Specialization, Courses of Specialization, Physical Education.

Under Selective Courses they have: Marxist-Leninist Ethics, Marxist-Leninist Esthetics, Logic, Foreign Language, Physical Education, History of Physics, Philosophy of Contemporary Science, Basic Economics & Industrial Organization, Contemporary Chemistry & Biology, School Science, Education & Methodology, School Equipment, Physiology of Growth Hygène, Lecturing Methodology and others.

Another document: an unreviewed draft translation, not dated. It is a listing of those disciplines taught thru correspondence courses at higher institutions of learning in the USSR under which students can be accepted who have either finished a special middle school or are working in a field they have chosen to study at the university.

Course Numbers: 0105 - Geophysical Methods of Prospecting or Searching For Mineral Deposits

0201 - Mine Surveying
0204 - Mineral Enrichment
0514 - Shipbuilding & Ship Repair
0524 - Ship Engines & Mechanical Devices
0525 - Ship Power Plants
0530 - Optical Devices & Spectroscopy
0535 - Aircraft Construction
0537 - Aircraft Engines
0604 - Semiconductors & Dielectrics
0606 - Automation & Telemechanics
0608 - Computers
0611 - Electronic Devices
0617 - Construction of Aircraft Equipment

- 1 0621 - Technical Use of Aviation Equipment & Aircraft
Electrical Equipment
- 2 0629 - Semiconductor Equipment
- 3 0639 - Automation & Integrated Mechanization of Chemical
Technological Processes
- 4 0642 - Informational Measurement Technology
- 5 0701 - Radiotechnology
- 6 0703 - Radio Communications & Transmissions
- 7 0705 - The Design & Construction of Radio Equipment
- 8 0706 - Technical Use of Aviation Radio Equipment
- 9 0708 - Multichannel Electronic Communication
- 10 0801 - Chemical Technology in Oil & Gas Refining
- 11 0803 - Technology of Inorganic Substances in Chemical
Fertilizers
- 12 0805 - Technology of Electrochemical Production
- 13 0806 - Chemical Technology of Binding Material
- 14 0807 - Technology of Basic Organic & Petrochemical Synthesis
- 15 0810 - Chemical Technology of Plastics
- 16 0811 - Chemical Technology of Laquers, Paints & Varnish
Paint Coatings
- 17 0812 - Technology of Rubber
- 18 0813 - Chemical Technology of Cinematographic film material
- 19 0830 - Chemical Technology of Ceramics & Refractory Materials
- 20 0831 - " " Glass & Metals
- 21 0833 - " " Fibers
- 22 0903 - " " Wood Materials
- 23 0904 - " " Cellulose Paper Production
- 24 1106 - Technology of Leather & Furs
- 25 1301 - " Polymer Film Materials & Artificial Leather
- 26 1301 - Engineering Geodessy
- 27 1302 - Astronomical Geodessy
- 28 1303 - Astronotogeodesy
- 29 1304 - Cartography
- 30 1501 - Agrochemistry & Soil Sciences
- 31 1504 - Plant Protection
- 32 1510 - Electrification of Agriculture
- 1606 - Ship Navigation on Sea Lanes
- 1607 - " " Internal Waterways
- 1610 - Aircraft & Engine Use
- 1612 - The Use of Ship Power Plants
- 1613 - " " " Electrical Equipment
- 2019 - Biology
- 2103 - Foreign Languages
- 2105 - Physics
- 2106 - Biology
- 2109 - Drafting & Drawing
- 2110 - Pedagogy & Psychology (Pre-school)
- 2111 - Defectology
- 2114 - Physical Education
- 2119 - Music & Singing
- 2120 - General Technical Disciplines & Labor
- 2201 - Piano (organ)
- 2202 - Orchestral Instruments
- 2203 - Folk Instruments
- 2206 - Choir Direction
- 2207 - Composition
- 2209 - Dramatic Theater & Film Acting
- 2211 - Drama Direction
- 2215 - Camera Operation
- 2220 - Graphics

Unreviewed draft translation - 32 pages. An Order of the Ministry of Higher & Secondary Specialized Education of the USSR - #647, dated 23 Aug 72.

Subject: Regarding the Nomenclature of Specializations of Scientific Workers

"The State Committee on Science & Technology of the USSR Council of Ministers by Decision #385 of 28 Jul 72 approved the nomenclature of specializations of scientific workers." Shows the numerical designation (resembles the Dewey Decimal System) for each specialization of scientific worker.

1 - Physical & Mathematical Sciences

1.01 - Mathematics

1.01.01 - Theory of Functions & Functional Analysis

1.01.02 - Algebra & The Theory of Numbers

1.01.04 - Geometry & Topology

1.02 - Mechanics

1.03 - Astronomy

1.04 - Physics

2 - Chemical Sciences (w/all breakdowns)

3 - Molecular Biology

3.00.04 - Biochemistry

3.00.05 - Botany

4 - Geological & Mineralogical Sciences

5 - Technical Sciences

Page 7 to 21 are Technical Sciences. Go thru Chemical Engineering --

5.01.00 - Applied Geometry & Engineering Graphisc

5.02 - Mechanical Engineering & Study of Machines

5.03 - Working Metals & Other Machine Building Material

5.04 - Power Metallurgical & Chemical Machine Building

5.05 - Transport & Mining Machine Construction

5.06 - Agricultural & Forest Technology Machine Building

5.07 - Aircraft Construction

5.08 - Ship building

5.09 - Electrical Machine Building & Electrical Equipment

5.10 - Electrical Apparatus Building

5.11 - Instrument Making Metrology & Information Measuring Systems

5.12 - Radio Engineering, Electronic Engineering & Communications

5.13 - Control, Augomation & Computer Technology

5.13.01 - Technical Cybernetics & The Theory of Information

5.13.02 - Theory of Automatic Regulation & Control

5.15 - Mining Useful Minerals

5.16 - Metallurgy

5.17 - Chemical Technology

5.18 - Technology of Food Productst

5.19 - Technology of Materials of the Textile & Light Industry

5.20 - Mechanization & Electrification of Processes of

Agricultural Production

5.24 - Geodessey

5.25 - Scientific Technical Information

5.26 - Safety Engineering & Fire Prevention Techniques

6 - Agricultural Sciences

6.01 - Agronomy

6.02 - Animal Husbandry

6.03 - Forestry

7 - Historical Sciences

8 - Economic "

9 - Philosophical "

10 - Philological "

11 - Geographical "

12 - Jurisprudence

13 - Pedagogical "

14 - Medical "

15 - Pharmaceutical "

16 - Veterinary "

17 - Study of Art

18 - Architecture

19 - Psychological "

20 - Military "

21 - Naval "

Reviewed draft translation. List of Specialties of Technical Schools & Colleges in the USSR and the Qualifications Given to People who Complete their Training in the Above Mentioned Specialties. Dated 1 Jan 74. Gives name of specialty, form of training, qualification on graduation.

1 Group 1 - Geology & Exploration of Useful Mineral Deposits

2 Geology, Prospecting & Exploration for Useful Mineral Deposits

3 Form of training: Day, correspondence. Qualification on
4 graduation: Technician in Geology

5 Listed in addition to Geology & Exploration of Useful Mineral Deposits -

6 Group 2 - Exploitation of Useful Mineral Deposits

7 3 - Power Engineering

8 4 - Metallurgy

9 5 - Machine Building & Instrument Building

10 6 - Electrical Machine Building & Instrument Building

11 7 - Radio Engineering & Communications

12 8 - Chemical Technology

13 9 - Wood Engineering & Technology of Wood Pulp Cellulose & Paper

14 10 - Technology of Food Products

15 11 - " Products in General Use

16 12 - Construction

17 13 - Geodesy & Cartography

18 14 - Hydrology & Meteorology

19 15 - Agriculture

20 16 - Transportation

21 17 - Economics

22 18 - Law

23 19 - Health Services & Physical Culture

24 20 - Education

25 21 - Art

42 page document. A list of majors & special courses in institutions of higher education of the USSR, dated Moscow 1972. By the Ministry of Higher & Secondary Professional Education of the USSR.

Gives the number of each subject, name, and the course. Somewhat a combination of last two documents.

Group 1 - Geology & Prospecting of Mineral Deposits

0101 - Geology & Prospecting of Mineral Deposits.

A Lists such things as Geology & Prospecting of Ore Bearing & Non-Ore Bearing Minerals

B Geology & Prospecting of Deposits of Rare & Radioactive Materials

C Shaft & Ore Geology

D Geology & Prospecting of Coal Deposits

E " " Peat "

F " " Mineral " of the Ocean Floor

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